

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (original): An acoustic transducer that converts a mechanical motion into acoustical energy comprising:

 a thin sheet diaphragm that is curved in a plane transverse to a first direction,

 a support that fixes one generally linear portion of said diaphragm along said first direction, and

 at least one actuator operatively coupled to said diaphragm and generally aligned with, but mutually spaced from said fixed generally linear portion in a second direction transverse to said first direction by a distance that produces a curvature of said diaphragm and that accommodates a movement of said diaphragm that corresponds to the travel of said actuator, said diaphragm movement being amplified with respect to said actuator travel and generally transverse to the direction of said actuator travel.

Claim 2 (original): The acoustic transducer of claim 1 wherein said at least one actuator is characterized by a high force and short linear travel.

Claim 3 (original): The acoustic transducer of claim 1 wherein said at least one actuator is a piezo actuator.

Claim 4 (original): The acoustic transducer of claim 1 wherein said curvature is generally parabolic.

Claim 5 (original): The acoustic transducer of claim 2 further comprising a seal at at least a portion of the periphery of said diaphragm to assist in maintaining the acoustic pressure gradient across said transducer.

Claim 6 (original): The acoustic transducer of claim 5 wherein said actuator is a piezo bimorph drive, and said operative coupling is generally at the center of said diaphragm to divide said diaphragm into two sections, and where said diaphragm curvature in one section is convex, and in the other section is concave.

Claim 7 (original): An acoustic transducer according to any of claims 4 or 5 for use in combination with a video screen display wherein said support overlies the screen display and said diaphragm is generally coextensive with, and closely spaced from, said screen display.

Claim 8 (currently amended): The acoustic transducer of claim 7 wherein said actuator is a piezoelectric drive and said diaphragm is formed of ~~an~~ an optically ~~clear film~~ clear material.

Claim 9 (original): The acoustic transducer of claim 7 wherein said diaphragm is fixed along its vertical centerline, and said actuator is a pair of actuators that are each operatively coupled to one lateral edge of said diaphragm to form two diaphragm sections each generally coincident with about half of the screen display.

Claim 10 (original): The acoustic transducer of claim 8 wherein said piezoelectric drive is a single layer piezo actuator.

Claim 11 (currently amended): The acoustic transducer of ~~any of the preceding claims~~ claim 1 further comprising an electronic drive circuit operatively connected to said ~~power actuators~~ actuator.

Claim 12 (original): The acoustic transducer of claim 11 wherein said drive circuit comprises an active filter and an amplifier.

Claim 13 (original): The acoustic transducer of claim 12 wherein said drive circuit further comprises a step-up transformer and a resistor connected in series with said transformer to control high frequency response.

Claim 14 (original): The acoustic transducer of claim 12 wherein said drive circuit drives said actuator to control operation at a main resonance in the transducer output.

Remarks/Arguments

The present Amendment is filed in response to the Office Action of October 9, 2003. In this Office Action the Examiner indicated that claims 1-10 and 12-14 were allowed. Claim 11 was objected to under 37 CFR 1.75(c). The Examiner indicated that prosecution on the merits was closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Applicant herein has amended claim 11 and it is believed that the objection under 37 CFR 1.75(c) has been rendered moot. In addition, a minor clerical correction has been added to dependent claim 8 and the claim has also been amended to more clearly recite the use of optically clear material.

In addition, the present Amendment is provided for purposes of adding a cross reference to U.S. Provisional Application No. 60/175,022, filed January 7, 2000, in accordance with 37 CFR 1.78(5)(i).

The changes do not affect the scope of the allowed claims.

In regard to the addition of a cross-reference to the earlier filed provisional application, Applicant notes that the reference is being added to the specification after the time period required by 37 CFR 1.78(a)(5)(ii). However, since a claim to the benefit of the filing date of the earlier filed provisional application is recognized on the filing receipt, a copy of which is attached hereto, it is believed that a petition pursuant to 37 CFR 1.78(a)(6) is not required. In fact, in the comments on final rule changes set forth in Official Gazette of January 22, 2002 the office indicated that it would not require a petition pursuant to 37 CFR 1.78(a)(6) in such circumstances:

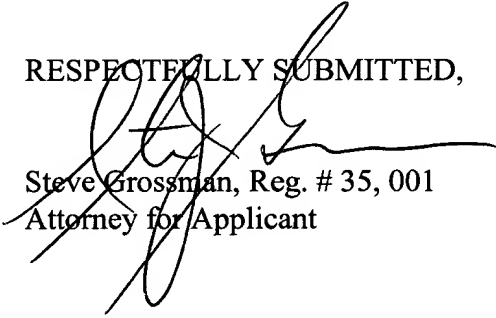
If an applicant includes a claim to the benefit of a prior-filed provisional application elsewhere in the application but not in the manner specified in

1.78(a)(5)(i) and (iii) (e.g., if the claim is included in an unexecuted oath or declaration or the application transmittal letter) within the time period set forth in 1.78(a)(5)(ii), the Office will not require a petition (and the surcharge under 1.17(t)) to correct the claim if the information concerning the claim contained elsewhere in the application was recognized by the Office as shown by its inclusion on a filing receipt. This is because the application will have been scheduled for publication on the basis of the information concerning the claim contained elsewhere in the application within the time period set forth in 1.78(a)(5)(ii). Of course, the applicant must still submit the claim in the manner specified in 1.78(a)(5)(i) and (iii) (i.e., by an amendment in the first sentence of the specification or in an application data sheet) to have a proper claim under 35 U.S.C. 119(e) and 1.78 to the benefit of a prior-filed provisional application.

As such, even though the addition the cross-reference to the earlier filed application is being filed after the time period required by CFR 1.78(a)(5)(ii) a petition pursuant to 37 CFR 1.78(a)(6) is not required since the claim to the benefit of the earlier application has been recognized by the Patent Office on the filing receipt for the application.

In view of the foregoing, entry of the present amendment is respectfully requested, at which point a formal notice of allowance would appear to be in order. In the event the Examiner desires personal contact for further disposition of this case, the Examiner is invited to call the undersigned attorney at 603-668-6560.

RESPECTFULLY SUBMITTED,


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Attachment: Copy of USFR